

CIA/PB 131632-140

OCTOBER 14 1960

Sanitized

UNCLASSIFIED - INFORMATION ON SOVIET
BLOC INTERNATIONAL GEOPHYSICAL COOPERATION
-1960

1 OF 1

INFORMATION ON SOVIET BLOC INTERNATIONAL GEOPHYSICAL COOPERATION - 1960

October 24, 1960

U. S. Department of Commerce
Business and Defense Services Administration
Office of Technical Services
Washington 25, D. C.

Published Weekly
Subscription Price \$12.00 for the 1960 Series

Use of funds for printing this publication has been
approved by the Director of the Bureau of the Budget, October 28, 1959

INFORMATION ON INTERNATIONAL GEOPHYSICAL COOPERATION --

SOVIET-BLOC ACTIVITIES

<u>Table of Contents</u>	<u>Page</u>
I. GENERAL	1
II. ROCKETS AND ARTIFICIAL EARTH SATELLITES	3
III. UPPER ATMOSPHERE	7
IV. METEOROLOGY	10
V. GRAVIMETRY	11
VI. OCEANOGRAPHY	11
VII. ARCTIC AND ANTARCTIC	12

I. GENERAL

Horizontal Fluctuations of Earth's Surface

If not taken into account, horizontal variations of the earth's surface can distort the results of even the most precise geodesic and astronomic observations. The measurement of such inclinations is also important for the study of the internal and external forces which cause them, and for the study of the secular motions of the earth's crust.

An explanation is given of the basic theories of the "horizontal pendulum" used for the measurement of slow horizontal inclinations; possible errors of indication by such pendulums are considered, whereby the prevailing thermal conditions of the space containing the measuring instrument is extremely important. An experimental study of the indications of inclinometers has shown that the position of the instrument has an appreciable effect on its indications. Recommendations are made regarding the choice and arrangements of sites for erecting field instruments, particularly for short-term observations. In the azimuthal installation, the inclinometers should be arranged in a complete circle so that, for any inclination, the sum of all the dip and lift angles of all the instruments will equal zero, which affords the possibility of isolating from all factors those which produce identical inclinations. The azimuthal method was tested experimentally under natural conditions, and with satisfactory results. A brief description is given of a water-tube inclinometer (level variometer) first produced in 1914 and subsequently modified at the Institute of the Physics of the Earth, Academy of Sciences USSR; its theory is also explained, and it is noted that similar instruments have found wide usage in Japan, particularly since their great length (some tens of meters) excludes the influences of local phase-different inclinations.

In the USSR and abroad, inclinometer observations are the basis for a study of dips and lifts of the earth's surface caused by various internal and external forces. Thermal gradients caused by the annual and daily temperature regimes produce an expansion and contraction of the rocks which make up the earth's surface. According to observations in Garm [Eastcentral Asia], the amplitude of the daily thermal gradient does not exceed 0.1 second in the first half-year, and amounts to 0.3 second in the second half-year. Vector diagrams of inclinations plotted for a number of points reveal a significant regularity expressed as a clockwise rotation of the major axis of the ellipse of the diagram from December to March and from June to December, and a counterclockwise rotation during the other months. It is shown that the deformations of the earth's surface caused by daily horizontal variations occur not only along the parallels but also along the meridians. According to observations in Garm, the amplitude of the annual horizontal fluctuation amounts to 10 seconds. A study of the annual regime requires long-term inclinometer measurements at a great number of points. Some hypotheses are advanced

regarding the nature of diurnal and annual measurements. Inclinations of the earth's surface resulting from changes of the atmospheric pressure and the falling of precipitation are periodic. Theoretical considerations and experimental measurements have led to the conclusion that horizontal motions occur with extremely varied periods, including extremely short periods. Secular inclinations in Garm amounted to nearly one minute after six years, 20 seconds after two years in Alma Ata, and three minutes after one and one half years at the "Ogoiya" station in Japan. What portion of the earth's surface is subject to a uniform horizontal secular inclination is still an open question. Results of measurements at a number of places show that earthquakes are preceded by "storms" of inclinations. It is shown that the study of inclinations as a means of predicting earthquakes has great promise, and ways of improving the method are suggested. Information is also given on the variations of inclinations in the vicinity of volcanoes and their connection with volcanic activity. ("Some General Results of Observations of Inclinations of the Earth's Surface," by V. F. Bonchkovskiy, Trudy Instituta Fiziki Zemli AN SSSR, No 7 (174), 1959, 62 pp -- from Referativnyy Zhurnal -- Astronomiya Geodeziya, No 6, 1960, Abstract No 5697)

II. ROCKETS AND ARTIFICIAL EARTH SATELLITES

Soviet Documentary Film Publicizes Space Achievements

The following is the full text of a brief article recently appearing in the Soviet press:

On August 27 there was a special showing of a documentary film entitled: "Earth - Space - Earth." It was prepared by the Central Studio of Documentary Films.

The film included unique movie frames showing the behavior of the dogs Belka and Strelka at the time of the flight of the second cosmic spaceship.

Subsequent movie frames showed the press conference held by members of the Academy of Sciences of the USSR for correspondents of the Soviet press at which the dogs and other living organisms were put on display after their return from space.

The film shows rank-and-file Soviet citizens expressing their pride in our Fatherland which is paving the way into cosmic space.

("Earth - Space - Earth," Sovetskaya Aviatsiya, 28 August 1960, p. 1) CPYRGHT

Soviet Scientists Comment on the Second Spaceship, its Passengers, and the Problems of Re-entry

Izvestiya, on 25 August 1960, carries a 1,500 word article containing commentary by a number of unnamed Soviet scientists. They discuss the safe return of the spaceship passengers to Earth, the reasons for selecting dogs as the principal experimental animals, conditions prevailing in the space cabin, and various aspects of space physiology. More than half of the article is devoted to the difficult problem of re-entry, especially for space vehicles carrying animals or humans. ("Life in a Spaceship Cabin," Izvestiya, 25 August 1960, p. 3)

"Pravda" Publishes Photo of Special Camera Used for Photographing Spaceship

The following is the text of a photo caption recently appearing in Pravda:

During the entire flight of the second spaceship numerous observation points made careful observations of its travels. In the photo: on these joyful days Junior Scientific Worker V. I. Belenko photographs the spaceship in flight using a special camera installed at an observation station of the Astronomical Council of the USSR Academy of Sciences.

(Untitled photograph, Pravda, 22 August 1960, p. 3)

CPYRGHT

Behavior of Belka and Strelka in Space Cabin Described

A recent Pravda article, accompanied by actual television stills of the space-dog Belka, briefly describes the television system aboard the second spaceship which made it possible for scientists to observe the behavior of the dogs at various stages of their historic flight. The television pictures were recorded on movie film and closely collated with telemetric data. The sixth paragraph, about 200 words in length, is a description of the behavior of the dogs as seen on the television screen. ("Television 'Eye' in Space," by P. Fedorov, Pravda, 22 August 1960, p. 2)

Armenian Scientist Comments on Importance of the Return of Belka and Strelka

A. Alikhan'yan, Corresponding Member of the Academy of Sciences of the USSR, and Director of the Physics Institute of the Academy of Sciences of the Armenian SSR, is the author of a brief commentary in Pravda of 22 August 1960. His article is largely limited to praise for the victory won by Soviet science in achieving the safe return of experimental animals from outer space; he also suggests the probability that it will be the Soviets who duplicate this feat with a human passenger. ("Forerunner of Great Conquests," by A. Alikhan'yan, Pravda, 22 August 1960, p. 2)

Belorussian Scientist Ponders the Psychological Problems of Man in Space

D. Markov, Academician of the Academy of Sciences of the Belorussian SSR, and Chief of the Clinical-Physiological Laboratory of the Institute of Physiology, Minsk, is one of the many scientists commenting in the August 22 1960 issue of Pravda on the importance of the safe return of the space passengers. He is especially concerned, however, with how humans will react under similar conditions. He writes as follows (in part):

CPYRGHT "It is necessary to study and seriously think out a regime of work and rest for the astronaut during his prolonged stay in an insulated cabin of relatively small size. During his flight he will not be subject to many of the distractions to which we are accustomed -- aural (complete silence) or visual (the darkness of surrounding space, without an illusion of depth). The rhythm of life to which man is accustomed will be disrupted -- the alternation of day and night, and of work and rest. Therefore a program of recreation and physical exercises must be worked out for those participating in flights in space." ("Concern for Future Cosmonauts," by D. Markov, Pravda, 22 August 1960, p. 2) CPYRGHT

Soviet Writer Reviews the Problems of Space Vehicle Re-entry

N. Aleksandrov (profession and affiliation unidentified), is the author of an article in Sovetskaya Aviatsiya of 30 August 1960. His material is a rehash of the problems of re-entry, in large part closely resembling the material in the Izvestiya article of 25 August 1960, cited above. The fourteenth paragraph, however, is a very interesting 100-word explanation of why it was on precisely the 18th revolution of the spaceship that the command was given for it to descend. ("Return from Space," by N. Aleksandrov, Sovetskaya Aviatsiya, 30 August 1960, p. 3)

Shternfel'd Discusses Computation of Trajectory for Rocket Flight to Venus

A. A. Shternfel'd, writing in the Ukrainian popular science publication Nauka i Zhittya, first briefly reviews our presently available knowledge concerning the planet Venus and then devotes a major part of his article to a discussion of the problem of computation of the trajectory to be followed by a cosmic rocket launched for the purpose of making a landing on that planet. ("A Flight to Venus," by A. A. Shternfel'd, Nauka i Zhittya, No. 7, 1960, pp. 18-21)

Soviet Scientists Hail the Latest Space Victory at 24 August Academy of Sciences Press Conference

The entire third page of the 26 August 1960 issue of Izvestiya is coverage of the memorable press conference held in the Academy of Sciences conference hall. The page is rather equally shared by the commentary of the six scientists listed below:

Academician A. V. Topchiyev, in commentary entitled "Triumph of Science and Technology," sets the stage for the others by comments of a general nature, reviewing many details concerning the latest space achievements, and contending that only in the USSR does science have the opportunity to develop its full potential, doing so for peaceful purposes. He also indicates that the flight of man into space is an event not too remote in the future.

Academician N. M. Sisakyan, in remarks entitled "The Biological Program," lists the various forms of life carried aboard the spaceship, the reasons for their inclusion, and the importance of the safe return of these space passengers to the advancement of biological science.

Academician V. V. Parin, under the heading "Noah's Ark," briefly lists the various animals carried aboard the spaceship and discusses the importance of rats and mice as cosmic travellers. His main subject, however, is the dog-passengers and he goes into this matter with considerable detail.

S. N. Vernov, Corresponding Member of the Academy of Sciences, dealt with the subject of "Cosmic Rays"; L. V. Kurnosova, Candidate in Physical-Mathematical Sciences, treated the subject of "Light and Heavy

Nuclei." Both Vernov and Kurnosova describe important apparatus carried aboard the second Soviet spaceship for the measurement of these important phenomena in outer space.

Professor I. S. Shklovskiy of Moscow State University commented on "Solar Radiation," the importance of space travel to the study of solar radiation and the importance of solar radiation to space travel. ("New Grandiose Attainment in the Mastery of Space!" *Izvestiya*, 26 August 1960, p. 3)

Al'pert Article on Use of Rockets and Satellites in the Study of the Ionosphere and Interplanetary Gas

Ya. L. Al'pert, a leading Soviet scientist in the field of ionospheric studies, discusses the different, principal radio methods of studying the electromagnetic properties of the ionosphere and interplanetary gas with the aid of artificial earth satellites and cosmic rockets in the latest issue of *Uspekhi Fizicheskikh Nauk*, Soviet scientific periodical. Special attention is given to the problem of the interaction of moving bodies with plasma, a role which up to now has been inadequately considered. In the examination of these problems much published experimental data bearing directly on them is used. Some of these works are cited.

The article begins with an examination of the experimental results obtained with high-altitude rockets, current research problems, and the peculiarities of certain types of experiments with satellites and rockets. In the following order he considers the Doppler effect on radio frequencies, the amplitude of radio signals from satellites or rockets, and the excitation of plasma by satellites.

Al'pert feels that while the different radio methods now permit the detailed study of the physical character of many phenomena which originate in the ionosphere and in interplanetary gas and also to obtain data on the morphology of the ionosphere, future research will require a more precise setting-up of experiments, the systematic accumulation of the experimental data and a deeper theoretical analysis of this data.

Present methods are based mainly on existing laboratory measurements in ground conditions. The future development of methods for investigating the ionosphere must, according to Al'pert, be through the use of phenomena which originate in "plasma" laboratories directly surrounding a satellite or rocket. The study of these phenomena is of general physical interest also as a means of studying plasma as such, independently from different geophysical or cosmophysical problems.

Al'pert sees the necessity for more careful analysis of the results obtained with satellites and different types of sondes, and the introduction of corrections based on the influence of different effects arising in the region of the plasma perturbed by a satellite. Future investigations of this type should be conducted which are based on known or predicted theoretical laws and the possibilities of various experiments revealed in the article. ("Study of the Ionosphere and Interplanetary Gas With the Aid of Artificial Satellites and Cosmic Rockets," by Ya. L. Al'pert, Moscow, *Uspekhi Fizicheskikh Nauk*, Vol 71, No 3, July 1960, pp 369-409)

III. UPPER ATMOSPHERE

Soviets to Publish Atlas of the Reverse Side of the Moon

Leningrad. 29 August. (TASS) Soviet astronomers have compiled the world's first atlas of the reverse side of the Moon.

A TASS correspondent was furnished the following information by Prof. A. A. Mikhaylov, Chairman of the Astronomical Council of the Academy of Sciences of the USSR, a Corresponding Member of the Academy.

The photographs of the reverse side of the Moon, taken in October 1959 from the Soviet automatic interplanetary station, were processed at the Pulkovo and Khar'kov observatories and at the Shternberg Astronomical Institute in Moscow. The interpretation of photographs was made by the scientists of these three astronomical institutions independently of one another and with excellent results.

An atlas of the reverse side of the Moon has been compiled on the basis of this work and will be published this year by the Academy of Sciences of the USSR. ("Atlas of the Reverse Side of the Moon," Sovetskaya Aviatsiya, 30 August 1960, p. 1)

Students' Meteor Station at Tomsk Polytechnic Institute

The study of meteors in the upper layers of the Earth's atmosphere is an extremely important branch of radioastronomy. The students of the Department of Design of Radiotechnical Apparatus at the Tomsk Polytechnic Institute have been engaged in such research since 1953. The Students' Design Bureau of this Department consists of five groups engaged in the development of individual links in a total complex.

The students have built a radar station with a 4-meter band width for study of meteor activity. They have taken part in regular observations in accordance with the International Geophysical Cooperation Program.

Laboratory tests of the meteor station on a 7-meter band width were completed during the summer. Tests are being made of a summary data indicator (ISD). The students propose to use the apparatus on a field meteor expedition. ("Students' Meteor Station," Tekhnika Molodezhi, No. 7, 1960, p. 19)

Uzbek Scientist Publishes Paper on the Interaction of Corpuscular Streams and the Earth's Magnetic Field

M. G. Antsilevich of the V. I. Romanovskiy Institute of Mathematics of the Academy of Sciences of the Uzbek SSR is the author of a recent article dealing with the interaction of corpuscular streams from the Sun and the Earth's magnetic field. ("Interaction of the Corpuscular Streams of the Sun and the Earth's Magnetic Field," by M. G. Antsilevich, Izvestiya Akademii Nauk UzSSR, Seriya Fiziko-Matematicheskikh Nauk, No. 3, 1960, pp. 44-51)

"Izvestiya" Carries Feature Article on Physical Conditions on Mars

Professor V. Sharonov, writing in the September 10, 1960 issue of Izvestiya, provides Soviet readers with an exceptionally informative article on physical conditions on Mars. Much of his text deals with the scientific arguments relative to the existence and character of a vegetation cover on that planet. ("Is Mars a Planet Where There is Life?" by V. Sharonov, Izvestiya, 10 September 1960, p. 4)

"Izvestiya" Correspondent Describes Day-to-Day Work at Pulkovo Observatory

Izvestiya of 28 August 1960 carries a feature article describing the activities carried on at the Pulkovo Astronomical Observatory. This is more of a human interest account, rather than a scientific report; the scientific information is general and commonplace knowledge. The article touches on such subjects as transit instruments, star catalogs, the latitude service, the movement of the poles, etc.

Mention is made of the automation of observations, a problem which until now has defied solution. The world's first and only apparatus automatically guiding a telescope during stellar photographic work has now been put into service at Pulkovo, functioning with a striking precision. ("Alone with the Universe," by N. Yermolovich, Izvestiya, 28 August 1960, p. 6)

Leading Russian Astronomer Writes of Merits of Astronomical Observations from Aboard Manned Space Vehicles

Professor D. Martynov, Director of the Shternberg State Astronomical Institute, writing in Pravda on 23 August, is particularly concerned with the importance of recent events for the field of astronomy. He stresses the immense advances astronomy will undergo as soon as it is possible to make observations from telescopes mounted on satellites situated above and beyond the severe hindrances imposed on such observations by the Earth's atmosphere. He points out that such observations could be made successfully from an unmanned space vehicle, but he feels that a human observer aboard such a vehicle would be immeasurably more productive. ("Event Which Astounded the World," by D. Martynov, Pravda, 23 August 1960, p. 2)

Radio Image of the Sun on 3 cm Wavelength

New observations of the Sun's radio emission on 3.2 cm wavelength were conducted with the 31-meter stationary radiotelescope of the Crimean Scientific Station of the Physics Institute, Academy of Sciences USSR (FIAN). "Radio images" of the Sun were obtained; a close connection between regions of heightened intensity of radio emission in the 3 cm and 21 cm range was established. It is shown that the regions of heightened

intensity of radio emission at wavelengths from 1.5 cm up to 21 cm are optically fine in the majority of cases. Data on the displacement of the effective center of solar radio emission on the 3 cm and 1.5 cm wavelengths are compared. Data on the "shape" of the Sun on the 3 cm wavelength is given. Polarization observations which were conducted on the 3.2 cm wavelength showed the presence of circular polarization over isolated regions of increased intensity. ("Radio Image of the Sun on 3 cm Wavelength," by V. V. Vitkovich and L. I. Matveyenko, Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR; Gor'kiy, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Radiofizika, Vol 3, No 3, 1960, pp 351-366)

Photographs High-Light Work at the Crimean Astrophysics Observatory

Two pages of photographs depicting the main phases of work being conducted at the Crimean Astrophysical Observatory, Academy of Sciences Ukrainian SSR, are carried in the June issue of the magazine, Nauka i Zhittya. A translation of the captions of the 10 photographs follows.

CPYRGHT

- (1) General view of the building in which the solar tower telescope is installed;
- (2) Ya. M. Odyntsova, director of the ionosphere station, conducts observations of the ionosphere during sunspot activity;
- (3) Scientific associate A. A. Stepanyan and radio engineer V. I. Kudryavchenko check the operation of an instrument -- a cubic telescope for registering the hard components of cosmic radiation;
- (4) Scientific associate N. M. Petrova photographs the solar spectrum with the aid of the solar tower telescope;
- (5) V. E. Stepanov, Candidate of Physicomathematical Sciences, adjusts the mirror of the solar tower telescope for observations;
- (6) S. I. Abramenko, laboratory technician and observer, studies the surface condition of the solar disk;
- (7) Scientific associate I. G. Moyshev and senior engineer Yu. F. Yurovskyy investigate radio emissions from the Sun;
- (8) B. M. Vladimirovskyy, senior laboratory technician of the cosmic ray station, installs an amplifier in a neutron monitor;
- (9) General view of a radio telescope for studying radio emissions from the Sun;
- (10) L. S. Galkin, scientific secretary of the observatory, and V. M. Mozherin, director of the satellite tracking station, photograph an artificial satellite with the aid of a double 400-millimeter

CPYRGHT

astrophys. ("In the Depths of the Universe"; Kiev, Nauka i Zhittya, No 6, 1960, pp 50-51) CPYRGHT

IV. METEOROLOGY

Report on Soviet Offshore Meteorological Station in Caspian Sea

The following is the full text of an article recently appearing in Ekonomicheskaya Gazeta:

There is a hydrometeorological station several kilometers from the city of Izberbasha (Dagestan SSR) on a steel "island" built by human hands in the Caspian Sea. Weathermen keep a round-the-clock watch during the storms of winter and the heat of summer.

Constant observations are made at the station: hourly measurements of temperature, transparency and salinity of sea water, wave velocity, air pressure, and many other elements used in making weather forecasts.

Weather forecasts for the Caspian area are drawn up on the basis of data collected by the workers at this station. Observational data are also sent out to be used in the compilation of a nationwide forecast. This station in the sea is one of the best in the country. It was recently awarded the honorary title of "Outstanding Station."

The photographs show: (at left) the Izberg Hydrometeorological Station; (at top) G. Kheylik, chief of the marine station. He has been working at meteorological stations in the Caspian area for 23 years.

(Untitled article, Ekonomicheskaya Gazeta, 4 September 1960, p. 4)

CPYRGHT

Uzbek Academy of Sciences Applies Computers to Weather Forecasting

The computing center of the Institute of Mathematics of the Academy of Sciences of the Uzbek SSR is using a "Ural" electronic computer in an effort to put weather forecasting on a more scientific basis. A 6-page article recently appearing in an Academy publication deals with the use of the "Ural" computer for precomputation of the geopotential height of the 700 mb isobaric surface. A barotropic model of the atmosphere is used in this procedure. ("Prediction of the Height of the 700-mb Isobaric Surface by Use of the 'Ural' Electronic Computer," by V. I. Gubin and S. Karimberdyeva, Izvestiya Akademii Nauk UzSSR, Seriya Fiziko-Matematicheskikh Nauk, No. 3, 1960, pp. 38-43)

V. GRAVIMETRY

A Study of Linear Theories of Gravitation

The linear theories of G. D. Birkhoff and F. J. Belinfante are compared with Einstein's general theory of relativity. It is shown that it is possible to find differences between them, which in principle, can be detected by experiments with artificial earth satellites. The effect, connected with the presence of the rotation of a central body, is studied in detail. It is shown that a consideration of this effect leads to different results in all theories. ("On Linear Theories of Gravitation," by V. I. Pustovoyt, Dnepropetrovsk State University; Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 3, 1960, pp 63-71)

VI. OCEANOGRAPHY

Latest Report on the "Lomonosov" -- Next Port -- Havana

The following is the full translation of a recent Izvestiya report on the whereabouts and activities of the "Mikhail Lomonosov."

Several cyclones and hurricanes occurred in the month of August in the region in which the Atlantic Expedition of the Marine Hydro-physical Institute of the Academy of Sciences of the USSR is currently operating. The voyage of the scientific research vessel "Mikhail Lomonosov" was made under difficult conditions.

After the successful completion of hydrophysical research in the Gulf Stream and Sargasso Sea, the expedition visited the Bermudas; at that point they met with scientists attached to the biological station on that island and members of the British Oceanographic Institute aboard the vessel "Iris."

After a three-day layover at Bermuda the "Mikhail Lomonosov" set sail to resume its work. We plan to arrive in Havana, the capital of Cuba, on August 31.

Aboard the "Mikhail Lomonosov"
27 August (By radio,

V. Lednev
Chief of Expedition

("The 'Lomonosov' Heads for Havana," Izvestiya, 28 August 1960, p. 3) CPYRGHT

VII. ARCTIC AND ANTARCTIC

Report on Tragedy at Soviet Main Base "Mirnyy"

A fire broke out in the quarters of the aerometeorological station at the south polar observatory Mirnyy on the night of 3 August 1960. As a result, eight scientific workers died.

It is clear from the data received from Mirnyy that the fire occurred during winds of hurricane force, with wind velocities exceeding 200 km per hour. The cause of the fire is still undetermined.

The workers of the aerometeorological detachment who were caught by the fire and the other expedition members who came to their assistance, fought selflessly to control the fire despite the fierce storm and the polar night. Fighting the fire was a difficult task because the building of the aerometeorological detachment, like many other buildings at the observatory, was buried under many meters of snow. This was the result of winds of hurricane and gale force, accompanied by snow. The winds and snowstorms had raged during the entire south polar winter.

Soviet polar workers have suffered a severe loss. The following persons died during the fire: O. G. Krishak, chief of the expedition's aerometeorological detachment; A. M. Belolikhov, forecaster; A. L. Dergach, meteorologist; I. A. Popov, V. I. Samushev and A. Z. Smirnov, herologists. Other victims included Oldzhikh Kostka, a scientific worker and aerologist of the Czechoslovakian Socialist Republic and Hans Christian Popp, scientific worker and meteorologist of the German Democratic Republic.

These names now enter into the history of the study and mastery of nature by Man.

The workers of the Fifth Soviet Antarctic Expedition, having buried their comrades with deep sorrow, are continuing their investigation of the severe environment of Antarctica in accordance with the intended program.

Condolences have been received from the National Academy of Sciences of the United States, from W. Nash, Prime Minister of New Zealand, and from scientific institutions and individual scientists in Australia, Great Britain, Belgium, Denmark, the German Democratic Republic, Czechoslovakia, and other countries. ("In a Severe Snow Storm," Pravda, 7 September 1960, p. 6)

- US COMM-DS -